

## CLAIMS

What is claimed is:

1. A digital hearing aid for conserving a life of a battery comprising:  
an audio input device that receives audio signals from an environment;  
a processor that processes the audio signals;  
an audio amplification circuit; and  
a controller that communicates with the audio input device, the processor, and the audio amplification circuit and that determines a magnitude of the audio signals, wherein the controller adjusts parameters of at least one of the processor and the audio amplification circuit if the magnitude of the audio signals is less than a predetermined threshold for a first period.
2. The digital hearing aid of claim 1 wherein the controller reduces power to at least one of the processor and the audio amplification circuit if the magnitude of the audio signals is less than the predetermined threshold for the first period.
3. The digital hearing aid of claim 2 wherein after reducing the power the controller increases power to at least one of the processor and the audio amplification circuit if the magnitude of the audio signals is greater than or equal to the predetermined threshold.

4. The digital hearing aid of claim 1 wherein the controller includes a comparator that compares the magnitude of the audio signals to the predetermined threshold.

5. The digital hearing aid of claim 1 further comprising:

an analog-to-digital converter that receives the audio signals from the audio input device converts the audio signals to a first digital signal, wherein the processor receives the first digital signal from the analog-to-digital converter and outputs a second digital signal; and

a digital-to-analog converter that receives the second digital signal and converts the second digital signal to an analog signal.

6. The digital hearing aid of claim 5 further comprising switching circuits that control power to at least one of the processor, the analog-to-digital converter, the digital-to-analog converter, and the audio amplification circuit, wherein the controller adjusts the switching circuits to adjust the power.

7. The digital hearing aid of claim 6 further comprising one or more clocks that determine functions of at least one of the processor, the analog-to-digital converter, the digital-to-analog converter, and the audio amplification circuit, wherein the controller adjusts the power by adjusting at least one of the one or more clocks.

8. The digital hearing aid of claim 1 further comprising one or more timers that determine the first period.

9. The digital hearing aid of claim 7 wherein at least one of the one or more clocks is external to the digital hearing aid.

10. The digital hearing aid of claim 8 wherein at least one of the one or more timers is external to the digital hearing aid.

11. The digital hearing aid of claim 1 further comprising an interface for adjusting the parameters of the digital hearing aid.

12. The digital hearing aid of claim 5 wherein the parameters include at least one of a sampling rate of the analog-to-digital converter, a sampling rate of the processor, a sampling rate of the digital-to-analog converter, and a sampling rate of the audio amplification circuit.

13. The digital hearing aid of claim 1 further comprising an integrator circuit that determines characteristics of the audio signals and outputs a logic signal indicative of the characteristics to the controller.

14. The digital hearing aid of claim 1 wherein the controller includes a clock that determines power delivery to the processor.

15. The digital hearing aid of claim 1 wherein the processor processes the audio signals according to one or more algorithms.

16. The digital hearing aid of claim 1 wherein the processor selects one of the one or more algorithms according to the magnitude of the audio signals.

17. A method for conserving a life of a battery in a digital hearing aid comprising:

detecting audio signals in an environment;

measuring a magnitude of the audio signals;

comparing the magnitude to a predetermined threshold;

reducing power to one or more modules residing on the digital hearing aid if the magnitude is less than the threshold for a first period;

restoring power to the one or more modules if the magnitude is greater than or equal to the threshold.

18. The method of claim 17 further comprising presetting the first period.

19. The method of claim 17 further comprising measuring the first period at a timer.

20. The method of claim 17 wherein reducing the power includes adjusting one or more clock signals of the digital hearing aid.

21. The method of claim 17 wherein reducing the power includes adjusting a sampling rate of at least one of the one or more modules.